

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 09/898,286 Confirmation No. 2215
Applicant : Geoffrey Donald Tremain
Filed : July 3, 2001
TC/A.U. : 2131
Examiner : Eleni A. Shiferaw
Docket No. : 1821-01100
Customer No.: 23505
Title: Method and Apparatus for Providing Computer Service

ADDITIONAL REMARKS
SUBMITTED WITH REQUEST FOR CONTINUATION

Attorney Dkt. No.: 1821-01100
Date: April 20, 2006

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

REMARKS/ARGUMENTS

Applicant acknowledges receipt of the Advisory Action dated February 8, 2006, in which the Examiner refused to enter the after-final amendment and Affidavit submitted therewith and continued the rejection of claims 1-55 as obvious over Bugnion (US 6075938) in view of Derks (US 6810033 B2), alone or in combination with other references, namely Bowman-Amuah (US 6697824) and Devine (US 6397242 B1).

Applicant again thanks the Examiner for her thoroughness in presenting her arguments. Nonetheless, Applicant would point out that the Examiner continues to rely upon the same muddled and inaccurate characterization of the prior art that has been the cornerstone of each office action to date. As set out in detail in the specification, previous and present Remarks, and the Affidavit, the term “virtual machine” has a very specific meaning, which the Examiner has so far failed to appreciate.

Applicant further respectfully submits that the arguments provided by the Examiner are wholly insufficient. Paraphrasing the references and then making conclusory statements that those references render the present claims "obvious" is not an adequate basis for rejection. If the Examiner intends to maintain the rejections, then Applicant respectfully requests that the Examiner provide an element-by-element analysis of at least the independent claims, showing where each claimed element can be found in the art. See MPEP 2143.03.¹

With regard to the assertions made by the Examiner in the Advisory Action, Applicant has the following comments.

Status of the Claims

Claims 1-64 are pending. All claims are rejected

The References do not Support the Rejections under 35 U.S.C. § 103(a)

In the Advisory Action, the Examiner asserts that Bugnion teaches "a system in which one or more virtual machine is set up for and by each of several customers to provide computer services for the customers." In support of this assertion, the Abstract of Bugnion is cited for the statement that "virtual machines are used to run multiple commodity operating system.. share files/data." The Examiner also states that Devine discloses "many different types of application running on the same physical machine of [*sic*, or] virtual machine. For example, Microsoft's operating system and Unix operating system running on the same virtual machine."

Applicant very respectfully points out that the text of Bugnion simply does not support the Examiner's position. The Bugnion disclosure does not contain any mention of a "customer," "third party," or other term that could be construed in the manner asserted by the Examiner, or of providing "computer services" for the "customers." Bugnion does not make any reference to customers at all, does not disclose providing one or more computer services for a plurality of

¹ **2143.03 All Claim Limitations Must Be Taught or Suggested** - To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

customers, and does not disclose a virtual machine that has a specification that is specified by and configurable by a customer.

Nor does Devine disclose these features. In fact, insofar as their relevance to the present application is concerned, Bugnion and Devine are equally irrelevant. Each discloses the technical features of a virtual machine monitor, which is a piece of software that can be used to set up one or more virtual machines on a real computer. By contrast, the present invention claims apparatus and methods that use virtual machines in a new and non-obvious way.

The Examiner's comment that Devine discloses "Microsoft's operating system and Unix operating system running on the same virtual machine," is completely incorrect. The passage in Devine cited by the Examiner is simply saying the following, which is very familiar to anyone who understands virtual machines: A real, host computer is typically set up to run a single operating system, which might be for example Windows or Unix. Unix software applications cannot run on a Windows operating system, and conversely Windows software applications cannot run on a Unix operating system. *Virtual machines* can be used to overcome this problem. In particular, on for example a real, host computer having a Windows operating system, a virtual machine can be set up in which the (virtual) operating system is Unix. In this way, Unix applications can be run on the (virtual) Unix operating system running on the virtual machine, with the virtual machine itself being created on the real, host computer which is running Windows. But this is not to say that the same virtual machine runs both the Windows and Unix operating systems simultaneously as apparently suggested by the Examiner: the real computer is running Windows and the virtual machine is running Unix.

The References Relate to Technologies that are Distinct from the Present Claims

Applicant again respectfully submits that the rejection over Bugnion is based on a fundamental misunderstanding as to what is claimed in the present application and what is disclosed in the cited art. Specifically, Bugnion discloses a virtual machine monitor that can be used to implement and supervise the operations of several virtual machines within a computer. Virtual machines, and the operation of virtual machines, are background art to both Bugnion and the present invention, having been known for several years. Bugnion's virtual machine monitor operates to set up and supervise, or "monitor", virtual machines within a computer, so as to enhance their operations.

However, neither Bugnion nor any other cited reference contemplates a system in which at least one virtual machine is set up for each of several customers and in which the virtual machines each have a specification that is specified by and configurable by the respective customers. The presently claimed concept of allowing multiple third parties to configure and control a plurality of virtual machines within a computer is entirely novel. As evidence of the novelty and non-obviousness of the presently claimed concepts, Applicants submit again herewith the Affidavit of Geoffrey Donald Tremain, who is the inventor of the present case and an expert in the technology underlying this invention.

As set out in the Affidavit, until the present invention, virtual machines on a single computer were controlled by a single entity, often a single individual, and were typically used for diagnostic or comparative assessments of software (such as new applications or operating systems being developed by the individual). Neither Bugnion nor the other references discloses or suggests the use of plural virtual machines on a real computer in which at least one virtual machine is set up for each of the customers, with each of those virtual machines having a specification that is specified by and configurable by the respective customer.

As stated in the present specification and the Affidavit, the problems solved by the present invention were significant and very real technical problems. At the time of the invention, entities who provided hosting services for multiple third parties (*i.e.* customers) either used multiple physical computers, with a respective real computer being dedicated to each customer, or resorted to a space-sharing system in which a single real computer was used to provide computer services to several different customers, which is not the same as using multiple virtual machines on the real computer and which therefore does not allow the security and independence that are afforded by the present invention.

Despite the significant cost and maintenance implications for the provider, despite the need for a system that would avoid these problems, and despite the existence of virtual machines, until the present invention, no one had contemplated a system in accordance with the present invention. In the face of such a long-felt need, Applicants conception of the present invention is a patentable advance over the state of the art.

Rejections under 35 U.S.C. § 102(e)

In support of her rejection of claims 37-39, 45-46, 48, 53 and 62-64, the Examiner cites Devine. However, as discussed in the enclosed Affidavit, in terms of its relevance to the present invention, Devine in essence discloses the same subject matter as Bugnion and is therefore equally irrelevant. In particular, as with Bugnion, Devine does not contemplate a system in which at least one virtual machine is set up for each of several customers to provide computer services for the customers and in which the virtual machines each have a specification that is specified by and configurable by the respective customers. Hence, Devine does not anticipate claim 37, or claims 38, 39, 45, 46, 48, 53 and 62-64.

For all of the foregoing reasons, it is respectfully submitted that the invention of each independent claim is patentable. Further, because the rejection of the independent claims must fail, the rejection of claims 4-9, 12, 14-17, 23-27, 30, 32-35, 40-44, 47 and 49-52 as obvious over Bugnion in view of Derks in combination with Bowman-Amuah must also fail.

Rejections over Wesinger, Jr. et al. (US 2001/0011304)

The Examiner has added the publication US 2001/0011304 to the cited art, although it is not clear on what grounds this reference might be used to reject the claims. With regard to Wesinger, the Examiner states "Wesinger...discloses virtual hosting of contents through the WWW to Web users. Multiple virtual host servers run on the same physical machine to provide different database content, files...to users. It is very well known to host/provide computer services like web hosting, files, data...to plurality of users at the time of the invention was made."

In response, Applicant respectfully points out that Wesinger teaches the use of "virtual web servers," which, unlike the present invention, do not run independent operating systems and which are therefore not actually "virtual machines" as that term is used in the present application. The virtual web servers of Wesinger run side-by-side within the real machine, but they do not run separate operating systems. In contrast, the present claims were amended early on (April, 2005) to require that each virtual machine have "an operating system running thereon." Because Wesinger does not disclose multiple virtual machines, each running an operating system, Wesinger cannot support a rejection of the present claims, either alone or in combination with the other references.

To obtain a better understanding of the distinction, the Examiner may wish to refer to paragraphs [0006] to [0022], particularly paragraphs [0019] and [0020], of the present specification which describe prior art Web hosting of the type disclosed by Wesinger. In particular, paragraph [0020] describes how delivery of Web hosting applications across the Internet or other external network involve either:

- 1) multiple organisations sharing a single Web server applications instance running on a single real server, which has associated security, functionality, manageability and availability issues;
- 2) multiple organisations using “virtual Web servers” which are created by a single Web server application instance on a single real server, which also has associated security, manageability and availability issues;
- 3) multiple organisations each with their own Web server instance running on multiple server partitions on a single real server, which has limitations as the partitions are typically static; or
- 4) multiple organisations, each with their own dedicated Web server held at an external service provider's hosting centre.

Notably, none of the prior approaches entailed each organization using its own virtual machine and each virtual machine running a separate operating system, as presently claimed

Affidavit

Applicant respectfully re-submits the attached Affidavit, which demonstrates why, in context of the state of the art to which this invention relates, the present claims describe a novel and non-obvious approach that was not contemplated by others. Indeed, others, when faced with the problems that are solved by the present invention, took burdensome and expensive steps because they did not have the benefit of the present concepts.

Request for Interview

Applicant believes that an interview with the Examiner would facilitate the Examiner's understanding of the distinctions between the present claims and the collected references. Therefore, Applicant requests that the Examiner indicate her availability for an interview, preferably during the month of May, if possible.

Further, because the content of the office actions indicates that the Examiner does not appreciate the fundamental concepts upon which Applicant's arguments are based, Applicant requests that the Examiner arrange for the attendance of the Supervisory Examiner for this case at said interview.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance. If the Examiner has any questions or comments, or otherwise feels it would be advantageous, she is encouraged to telephone the undersigned at (713) 238-8043.

Respectfully submitted,



Marcella D. Watkins

Reg. No. 36,962

Conley, Rose P.C.

P. O. Box 3267

Houston, Texas 77253-3267

(713) 238-8000

ATTORNEY/AGENT FOR APPLICANT